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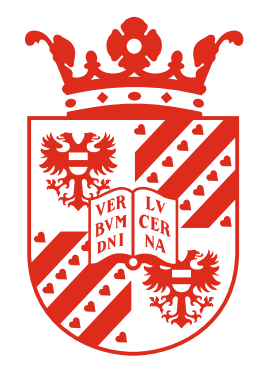
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Pottery Production in the Pontine Region, Central Italy

B. Borgers, G.W. Tol & T.C.A. de Haas

Introduction

The Groningen Institute of Archaeology (GIA) has conducted field campaigns in the Pontine region since the 1970's, when it became a partner in the excavations of ancient Satricum. Since then, it has extended its scope with field surveys, intensive site mappings, targeted excavations and geo-archaeological examinations throughout the region, within the context of the Pontine Region Project. In the project's current phase, the role of minor settlements in the rural economy of Roman central Italy is being examined. Such 'Minor Centres' include all kinds of rural settlements that were centres of craft production and exchange, and where religious feasts and administrative tasks were carried out (Tol et al. 2014). Three case-study sites have been selected (*Astura*, *Forum Appii* and *Ad Medias*), which are being studied by a combination of non-invasive archaeological techniques (field walking, geophysical prospection, coring).

In studying the relationships between these minor centres and their immediate surroundings, we adopt above all a ceramic approach, which combines typo-morphological classifications with thin section petrography, and we confront material from documented production sites with that from rural consumption sites. This poster presents the petrographic descriptions of all the productions, which have been mapped so far.

Pottery production in the Pontine Region

The Pontine region is situated 60 km south of Rome. It consists of a large coastal plain, which is bounded by the Alban Hills and the Lepini and Ausoni Mountains to the north and east, and by the Tyrrhenian Sea to the west. The inner most part of this plain is an infamous wetland, the Pontine marshes, that was reclaimed and opened up with the construction of the *Via Appia* in the late 4th c. BC (fig. 1).

The discovery of physical evidence for ceramic production in the Pontine region is very important, given that it provides secure reference material for local fabrics. Until now production activity have been identified at four different locations in the Pontine plain:

At *Forum Appii* an area with four kilns was mapped northwest of the confluence of the Cavata river and the *Decennovium* canal, whereas an industrial zone was identified northeast of the settlement, based on the presence of numerous misfired tiles and cover tiles. Waster fragments of amphorae, coarse ware and black gloss are also present, albeit in lesser quantities. The production activity is dated to the late 2nd or 1st c. BC (fig. 2a).

At *Ad Medias*, a kiln and numerous waster fragments were identified, comprising tiles, cover tiles, coarse ware and amphorae (fig. 2b). The recovered fragments suggest a date in the 2nd or 1st century BC for the identified productions.

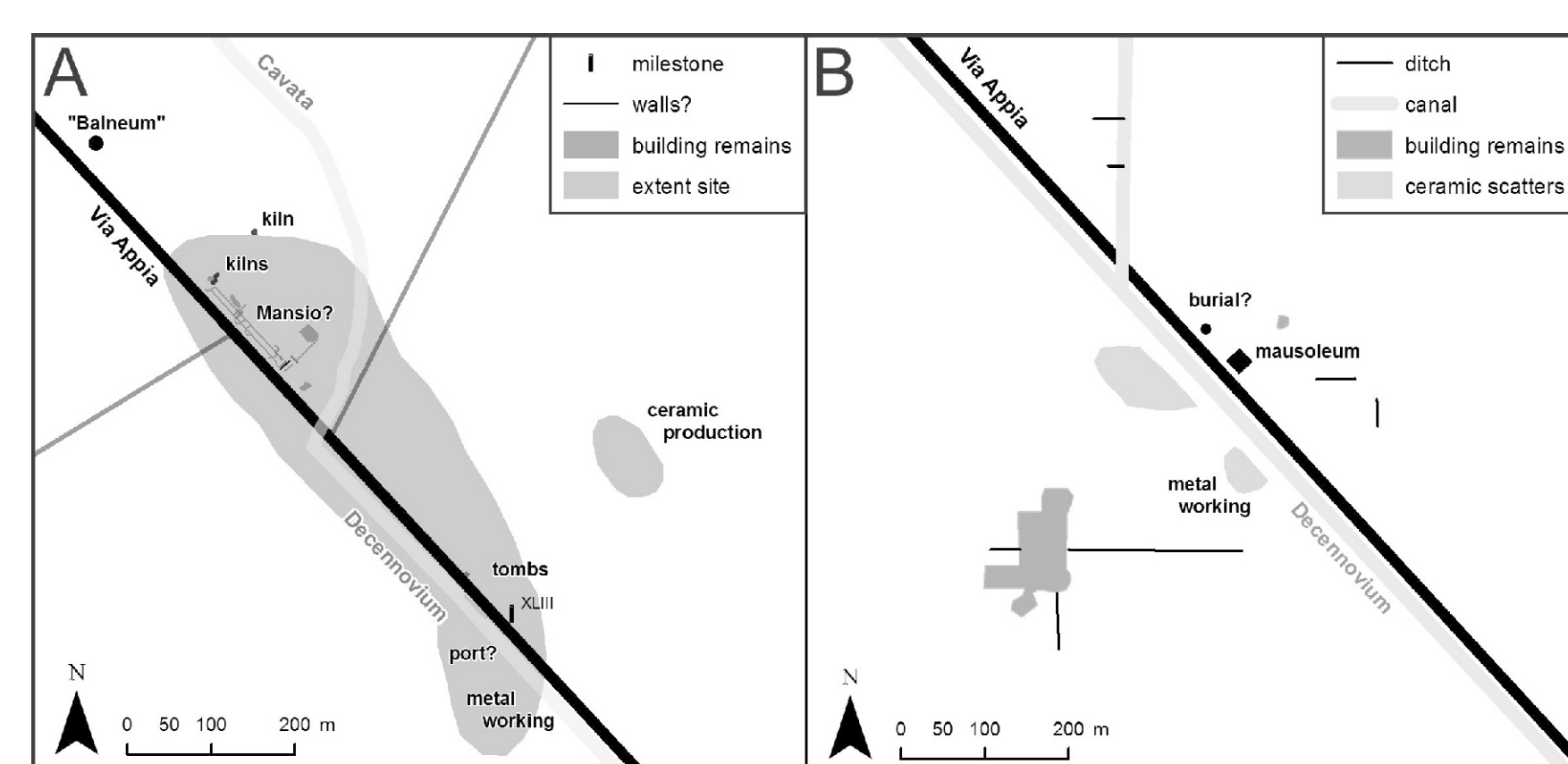


Figure 2a/b: Infrastructure related to potting activities, including kilns, clay storage tanks and pits, has been identified at the sites of Forum Appii (left) and Ad Medias (right)

In addition, a small rural site (12317) yielded evidence for pottery production. The site is located in the interior plain near the Rio Martino canal, which drained the lower Pontine plain to the Tyrrhenian coast (fig. 1). A pottery kiln and several clay pits were identified (fig. 3), and surface finds include kiln fragments and wasters of *dolia*, whose production is tentatively dated to the late 2nd or 1st c. BC, based on associated surface ceramics.

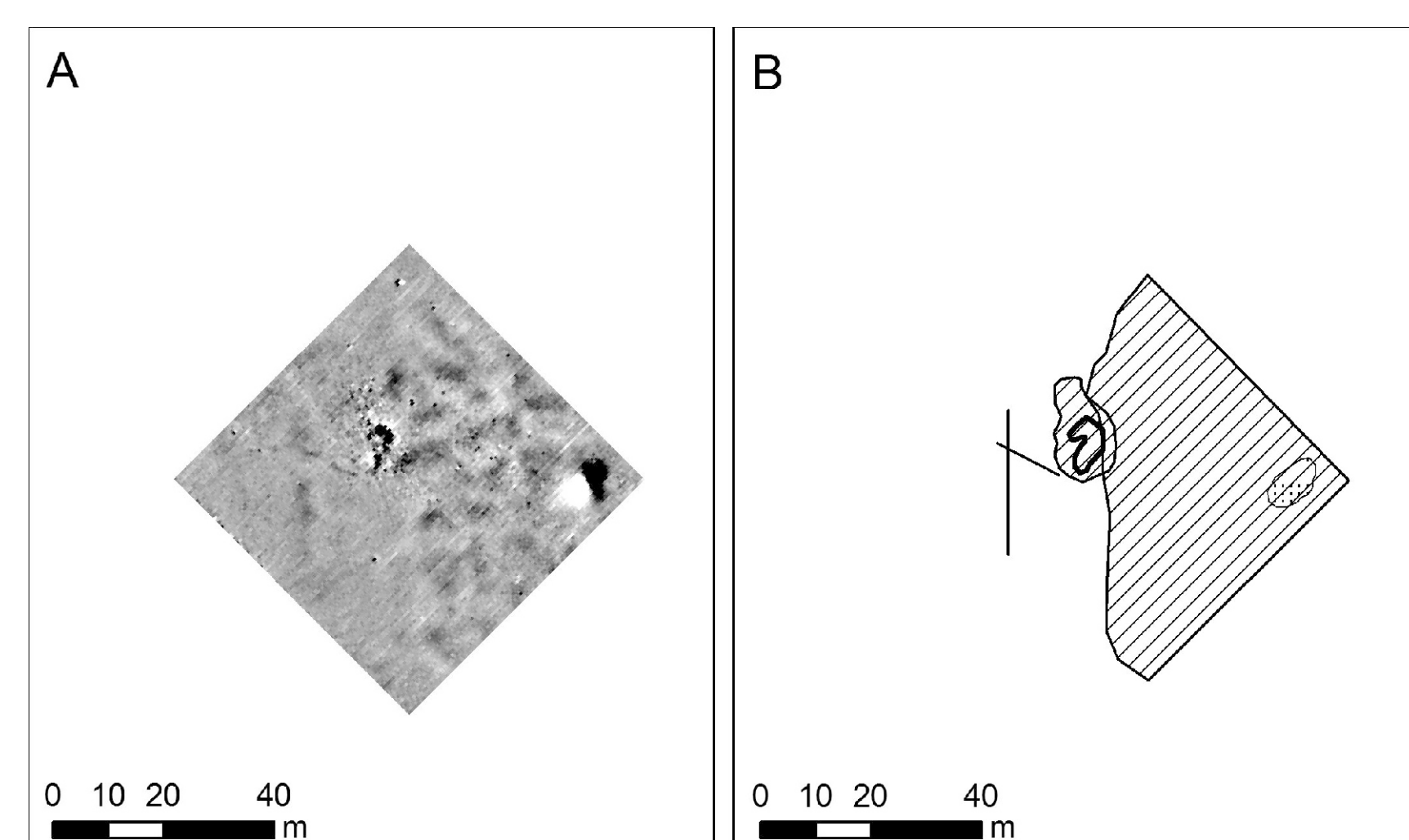


Figure 3: Geophysical prospection revealed the presence of a pottery kiln, and several anomalies, which may represent clay pits at the site 12317.

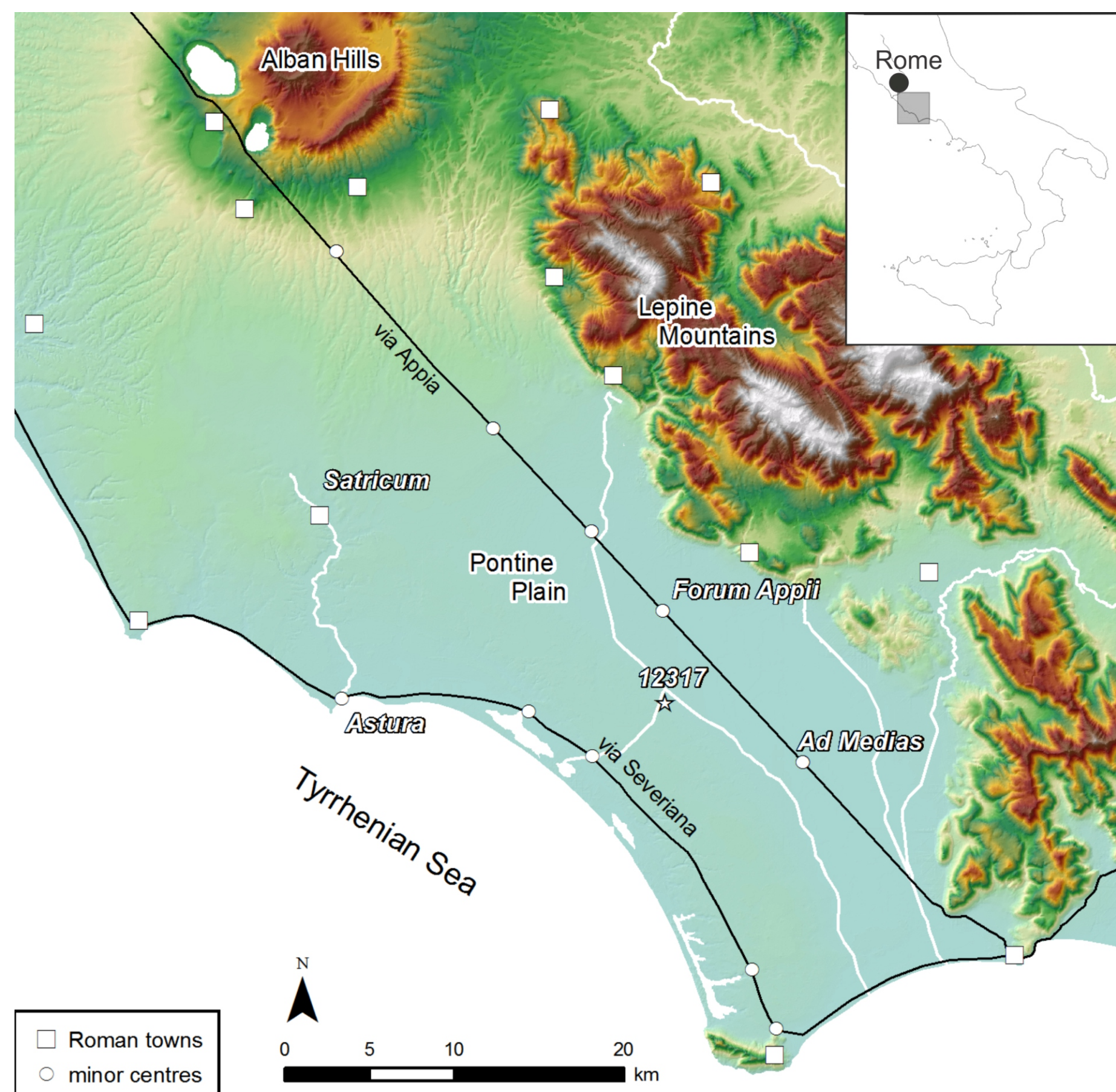


Figure 1 - The Pontine region with the location of the sites studied in the Minor Centers Project.

Petrographic Results

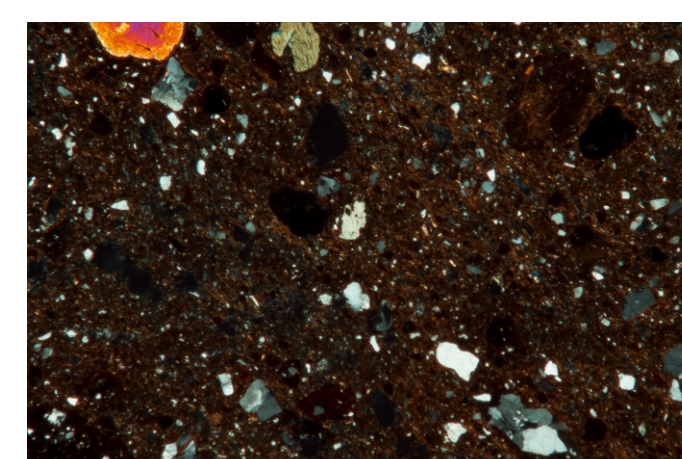


Figure 6: Typical fabric of dolia produced at site 12317.

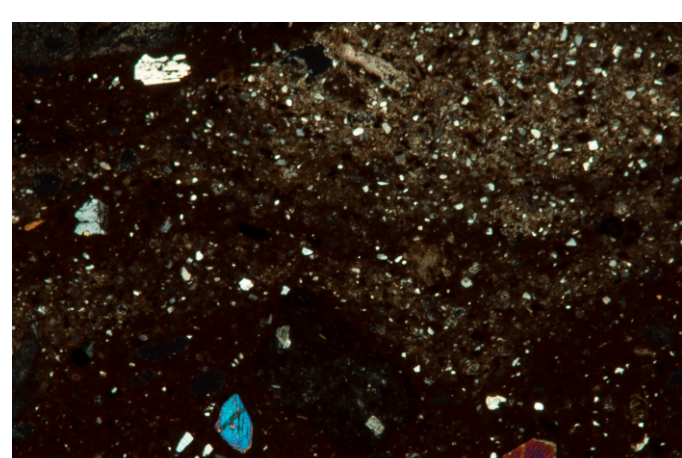


Figure 7: Typical fabric of tiles produced at Forum Appii.

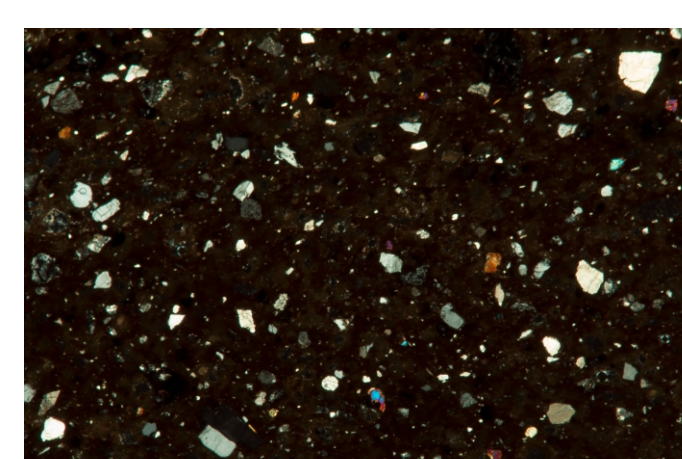


Figure 8: Typical fabric of amphorae produced at Forum

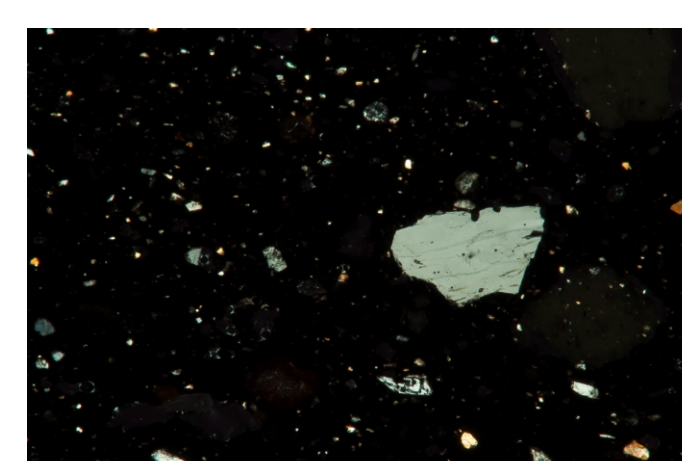


Figure 9: Typical fabric of tiles produced at Ad Medias.

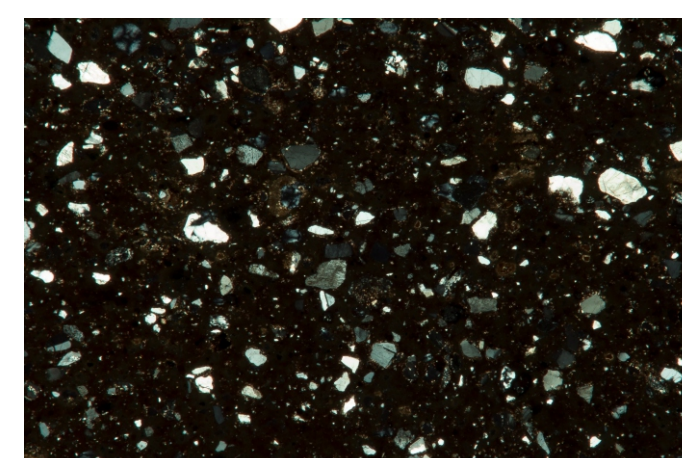


Figure 10: Typical fabric of coarse wares produced at Ad Medias.

Dolium: Coarse Augite, Leucite and Ferro-Manganese Inclusions

The fabric is characterized by sand-sized sub-angular augite, leucite, quartz (1.5 mm) and rounded ferro-manganese inclusions (2-2.5 mm) in a red firing clay with fine mica and biotite inclusions. It is likely that the augite and leucite inclusions were added as temper (fig. 6).

Tile: Clay Mixing Fabric

This fabric contains sand-sized angular sandine feldspar, sub-rounded augite, and rounded quartz and weathered volcanic glass inclusions (2.5 mm). Streaks of two types of clay can be identified: the first is red firing with silt-sized mica and iron-rich inclusions, whilst the second is light-coloured with fine quartz inclusions (fig. 7).

Amphora: Fine Red Matrix

The fabric is characterised by well-sorted mono-crystalline quartz, sandine feldspar and augite (< 1 mm) in a red firing micaceous clay. Occasionally, weathered volcanic glass inclusions (2 mm) can be identified, (fig. 8). It may comprise a processed version of the red clay, used for tile production at *Forum Appii*.

Tile: Fine Red fabric

The fabric is characterised by sand-sized angular sandine feldspar in a red micaceous clay. Occasionally, reddish brown clay pellets (2 mm) and quartz and mica inclusions (1 mm) can be identified (fig. 9).

Coarse Ware: Fine Red Matrix with Quartz

This fabric is characterised by well-sorted quartz, sandine feldspar (< 0.5 mm) in a red micaceous clay (fig. 10).

Sampling strategy and method

A total of c. 120 ceramic samples were selected for the purpose of cross-period fabric comparisons. All the ceramic samples were prepared as standard 30 µm sections, and analysed under a polarising light microscope at the Groningen Institute of Archaeology. The ceramic thin sections were grouped in fabrics, based upon the nature of the clay matrix, inclusions and voids, with the underlying aim of identifying evidence for both technological processes and provenance (Quinn 2013, 73–79).

Sixteen clay samples were collected near the sites where pottery wasters were identified, and where geophysical research indicated the presence of infrastructure related to pot-making activities. The clay sourcing campaign targeted specific areas around the production sites, and took into account the minerals and raw materials identified in the ceramic thin sections (figs. 4, 5).



Figure 4: Collection of a clay sample using an auger.



Figure 5: Clay sourcing campaign with Jan Sevinck (UvA).

Conclusions

The first results of the petrographic analysis show that the pottery from documented production sites in the Pontine plain can be used to identify potters' technological traditions: whilst potters exploited the same landscape for suitable raw materials, they preferred different materials depending upon their technological traditions. More specifically, it is likely that they explored a red firing colluvial clay for tile production at the sites of *Forum Appii* and *Ad Medias*. They used both coarse and fine recipes for the production of tiles and cover tiles, which suggests that there was no strong link between fabric and form. In addition, they may have used a fine, levigated, version for the manufacture of amphorae. As for site 12317, potters seem to have used marine sediments for the manufacture of *dolia*. In order to further our understanding on the types of raw materials that may have been used in ancient times, in a next stage of the project, the sourced geological deposits will be compared with the identified ceramic fabrics.



Figure 11: Geophysical prospections at Forum Appii.

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- QUINN, P.S. 2013, *Ceramic Petrography: the interpretation of archaeological pottery and Related artefacts in thin section*, Archaeopress, Oxford.
- TOL, G., DE HAAS, T.C.A., ARMSTRONG, K. & ATTEMA, P.A.J. 2014, Minor Centres in the Pontine plain: the cases of Forum Appii and Ad Medias, *Papers of the British School at Rome* 82, 2014, 109-134.

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